

**WHAT IS CLAIMED IS:**

1           1.     An electrical contacting apparatus in an ink jet printer, for contacting the contact  
2 portions of an ink cartridge with the contact portions of a printed circuit board installed on a carrier  
3 in order to electrically connect the ink cartridge to the carrier on which the ink cartridge is mounted,  
4 the apparatus comprising a plurality of spring elastic members corresponding to the contact portions  
5 of the ink cartridge, wherein each of the spring elastic members comprises:

6                 a contact portion which contacts a contact portion of the ink cartridge;  
7                 a base having one end electrically connected to the printed circuit board; and  
8                 a connection portion connected to the contact portion and the base for providing an elastic  
9 restoration force between the contact portion and the base.

1           2.     The electrical contacting apparatus in an ink jet printer of claim 1, further comprising  
2 a housing for receiving a spring elastic member and maintaining the elastic force of the contact  
3 portion of the received spring elastic member with respect to the base of the received spring elastic  
4 member.

1           3.     The electrical contacting apparatus in an ink jet printer of claim 2, wherein the  
2 housing has a space for receiving the spring elastic member, and a window for exposing the spring  
3 elastic member to the outside is formed on an opening of the housing on the side of the space.

1           4.     The electrical contacting apparatus in an ink jet printer of claim 1, wherein one end  
2 of the base is electrically connected to the printed circuit board by soldering.

1           5.     The electrical contacting apparatus in an ink jet printer of claim 1, wherein the spring  
2 elastic member is formed of phosphor bronze plated with nickel, and the contact portion of the spring  
3 elastic member is further plated with gold.

1           6.     The electrical contacting apparatus in an ink jet printer of claim 5, wherein the nickel  
2 is formed to a thickness of 0.5 to 20  $\mu\text{m}$ , and the gold is formed to a thickness of 0.1  $\mu\text{m}$  or greater.

1           7.     The electrical contacting apparatus in an ink jet printer of claim 6, wherein the nickel  
2 is formed to a thickness of 1.27  $\mu\text{m}$ , and the gold is formed to a thickness of 0.3  $\mu\text{m}$ .

1           8. An ink-jet printer, comprising:  
2 an ink cartridge comprising a plurality of electrical contacts;  
3 a carrier for mounting said ink cartridge thereon;  
4 a printed circuit board (PCB) disposed on a back side of said carrier;  
5 a housing disposed on said PCB, said housing facing a front side of said carrier, said housing  
6 having a plurality of openings facing said front side of said carrier; and  
7 a plurality of spring elastic members disposed in said housing, each of said plurality of spring  
8 elastic members being electrically conductive and having a first and a second end, said first end

being electrically connected to said PCB and a contacting portion of said elastic member near said second end protruding through a corresponding one of said plurality of openings in said housing and having an elastic force, each one of said plurality of elastic members capable of forming electrical contact at said contacting portion with corresponding ones of said plurality of electrical contacts of said ink cartridge when said ink cartridge is placed on said carrier.

9. The ink-jet printer of claim 8, wherein each one of said plurality of elastic members comprising a connection portion disposed within said housing and disposed between said first end and said contacting portion of said second end of said elastic member providing elastic force to said contacting portion of said elastic member.

10. The ink-jet printer of claim 9, wherein each one of said plurality of elastic members has an equal amount of elastic force as compared to other ones of said plurality of elastic members.

11. The ink-jet printer of claim 9, wherein said connection portion of each of said plurality of elastic members being substantially U-shaped.

12. The ink-jet printer of claim 8, wherein said first end of each of said plurality of elastic members being electrically connected to said PCB by soldering.

1           13.    The ink jet printer of claim 8, wherein each of said plurality of elastic members is  
2    made of phosphor bronze plated with nickel, and the contacting portion of the spring elastic member  
3    is further plated with gold.

1           14.    The ink jet printer of claim 13, wherein the nickel is formed to a thickness of 0.5 to  
2    20  $\mu\text{m}$ , and the gold is formed to a thickness of 0.1  $\mu\text{m}$  or greater.

1           15.    The an ink jet printer of claim 14, wherein the nickel is formed to a thickness of 1.27  
2     $\mu\text{m}$ , and the gold is formed to a thickness of 0.3  $\mu\text{m}$ .

1           16.    A method for producing a plurality of spring elastic members that provide electrical  
2    contact between an ink cartridge and a printed circuit board (PCB) of an ink-jet printer, comprising  
3    the steps of:

4                depositing phosphor bronze plated with nickel on said plurality of spring elastic members;

5                plating a contacting portion of each of said plurality of spring elastic members with gold;

6                inserting said plurality of spring elastic members into a housing, wherein said contacting  
7    portion of each of said plurality of spring elastic members protrudes through one of a plurality of  
8    openings; and

9                soldering one end of each of said plurality of spring elastic members to said PCB.

1           17.    The method of claim 16, wherein the nickel is formed to a thickness of 0.5 to 20  $\mu\text{m}$ ,  
2    and the gold is formed to a thickness of 0.1  $\mu\text{m}$  or greater.

1           18.    The method of claim 17, wherein the nickel is formed to a thickness of 1.27  $\mu\text{m}$ , and  
2    the gold is formed to a thickness of 0.3  $\mu\text{m}$ .